The Role of *ex-vivo* Gene Therapy of Vein Grafts with Egr-1 Decoy in the Suppression of Intimal Hyperplasia

Peroulis M., Kakisis J., Kapelouzou A., Giagini A., Giaglis S., Mantziaras G., Kostomitsopoulos N., Karayannacos P., Macheras A. Eur J Vasc Endovasc Surg 2010;40:216–23.

Objectives: To test the hypothesis that vein graft intimal hyperplasia can be significantly suppressed by a single intra-operative transfection of the graft with a decoy oligonucleotide (ODN) binding the transcription factor Egr-1.

Design: Experimental study.

Materials and methods: Jugular vein to carotid artery interposition grafts in rabbits were treated with Egr-1 decoy, mutant decoy ODN, vehicle alone, using a non-distending pressure of 300 mmHg for 20 min, or were left untreated. All animals were fed a 2% cholesterol diet. The animals were sacrificed after 48 h, 6 weeks and 12 weeks. Paraffin-embedded vein sections were subjected to angiometric analysis.

Results: Successful delivery of the ODN was confirmed by DAPI staining. Quantitative real-time PCR revealed a 60% decrease of the Egr-1 gene expression in the animals in which the Egr-1 decoy ODN was delivered. Cellular proliferation was also significantly decreased as indicated by the Ki-67 labelling index. An increase in intimal and medial thickness was found in all vein grafts. However, intimal thickness was significantly reduced in the grafts treated with Egr-1 decoy ODN, whereas luminal area was significantly increased.

Conclusion: A single intra-operative pressure-mediated transfection of vein grafts with Egr-1 decoy ODN significantly suppresses intimal hyperplasia in a rabbit hypercholesterolaemic model.

Stenting for Chronic Post-thrombotic Vena Cava and Iliofemoral Venous Occlusions: Mid-term Patency and Clinical Outcome

Rosales A., Sandbæk G., Jørgensen J.J. Eur J Vasc Endovasc Surg 2010;40: 234–40.

Objectives: The aim of this study was to determine the mid-term patency and the clinical outcome after stenting of chronic occluded caval and iliofemoral venous segments.

Design: Observational study.

Material/methods: During the period 2000 and 2009, 2400 patients with chronic venous insufficiency (CVI) were evaluated, and 34 with chronic venous occlusions after deep venous thrombosis (DVT) were selected for endovascular treatment. The median age was 41 (range 15–63) years, and 19 were female. The following investigations were undertaken: colour duplex ultrasound (CDU), ascending venography (AV), venous occlusion plethysmography (VOP), venous pressure gradient (VPG) and CT venography or trans-femoral/popliteal venography. The major symptoms were venous claudication, oedema, pain and ulcer. All patients were treated by stenting occluded segments. Self-expanding stents were deployed in 22 iliofemoral, nine iliac and one caval-iliac-femoral. Twenty-one procedures required stenting across the inguinal ligament.

Results: Primary recanalisation was accomplished in 32/34 (94%). The median follow-up was 33 months (1–96) with clinical examination, CDU and VOP. Two-year primary patency was 14/21 (67%), primary-assisted patency 16/21(76%), and secondary patency was 19/21 (90%). Venous claudication and oedema resolved in those successfully recanalised. Four of the seven ulcers healed.

Conclusion: Stenting to treat venous claudication, oedema and recurrent venous ulcer caused by post-thrombotic chronic venous occlusions has positive clinical outcome and good mid-term patency.

Laser and Radiofrequency Ablation Study (LARA study): A Randomised Study Comparing Radiofrequency Ablation and Endovenous Laser Ablation (810 nm)

Goode S.D., Chowdhury A., Crockett M., Beech A., Simpson R., Richards T., Braithwaite B.D. Eur J Vasc Endovasc Surg 2010;40:246–53.

Objectives: There have been few randomised studies comparing Radiofrequency Ablation(RFA) with other endovenous techniques. The primary aim of this study was to determine whether RFA of the great saphenous vein (GSV) was associated with less pain and bruising than endovenous laser ablation (EVLA).

Materials and methods: This trial had two cohorts – patients with bilateral GSV incompetence causing varicose veins (VV) and those with unilateral GSV VVs. In total 87 legs were treated in this study. Limbs in the bilateral group were treated with RFA in one leg and EVLA in the other. In the unilateral group limbs were randomised to RFA or EVLA. RFA was performed using the Celon RFiTT system (Teltow, Germany). EVLA was performed using an 810 nm Laser (Biolitec AG, Germany). Phlebectomies were performed as required. Primary endpoints were patient assessed pain and bruising measured by visual analogue scale (VAS). Secondary endpoints were patency assessed by duplex ultrasound at 6 weeks and 6 months.

Results: In the bilateral group, RFA resulted in significantly less pain than EVLA on days 2–11 postoperatively. RFA also resulted in significantly less bruising than EVLA on days 3–9. There were no significant differences in mean post operative pain, bruising and activity scores in the unilateral group. Both RFA and EVLA resulted in occlusion rates of 95% at 10 days postoperatively.

Conclusions: RFA was less painful for patients than EVLA and produced less bruising in the postoperative period with comparable success rates but there was no difference in the unilateral group.